

1-2011

# Creating the Creative Room

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## Recommended Citation

Smith, Brian, "Creating the Creative Room" (2011). *Creative Studies Graduate Student Master's Projects*. Paper 38.

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**Buffalo State College**  
**The International Center for Studies in Creativity**

**Creating the Creative Room**

A Project in Creative Studies

By

Brian Smith

Submitted: Spring 2010

## **Abstract**

This project will explore the process of creating a room that is designed to foster creativity. Specifically this study will help me find the ideal environment for creative thought. I will explore what characteristics such a room would need and turn my findings into a 3-dimensional computer model.

The questions that guided this study were: (1) What are the characteristics of my creative room? (2) Is it possible to build a room that would foster creativity in a group? (3) Is it practical for an organization to build such rooms?

A variety of tools were used to determine the most conducive atmosphere for my creative thought process. The data collected was examined and used to create characteristics for the design of my room. The findings were then used to design a 3-dimensional computer model of my ideal room. This was all done before doing any research on creative climates or creative atmospheres, so not to influence my decisions throughout the process. The main reason for going through this process was to find the climate in which I do my best creative thinking. The benefits of this will be explained in the project.

For the second part of this project I wanted to find out if a room could be created that would foster creativity in a group of people. Since the creative thought process is very individual, I looked to find common characteristics to incorporate in the room. Also, if such a room could be constructed, what would it look like?

The literature reviewed states the importance of climate in the creative thought process. However, there is little research in the design and physical characteristics of a creativity room.

This project will just scratch the surface on the practicality of such rooms. Ultimately further research is needed to determine the overall benefits creative rooms could have on organizations.



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# **Section One:**

# **Background to the**

# **Project**

*This section will present the*

- Introduction
- The rationale for project

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## **Introduction**

People have creative ideas all the time and in different places. Ideas can be conceptualized while walking down the street or while listening to music. For some people a quiet place where they can sit alone to concentrate is required for creative thought. Research has proven that the climate in which a person surrounds themselves with has an effect on the creative thinking process (Amabile, 1997; Ekvall, 1983; 1984; 1997; Isaksen & Lauer, 2002.). Goran Ekvall's (1983) work produced ten factors for a creative climate. While his work and others focused mainly on creative atmosphere that is created by climates within an organization, this project will focus on the physical environment and the creative atmosphere it can create. Many people are not aware of how environmental factors can influence creative thought. There are many books and articles that explore different aspects of the environment that may affect creativity. A few surveys have been developed that try to determine an individual's learning style or their most conducive creative environment. A survey was created by Rita Dunn, Kenneth Dunn and Gary Price called the Productivity Environment Preference Survey (PEPS). This survey looks at aspects of the physical environment to determine an individual's preference. Also Dr. John Shindler developed the Paragon Learning Style Inventory (PLSI) which identifies how an individual works/learns. By determining preferences a person can develop an understanding of what their ideal setting is for the most productive creative thinking.

Since each individual has different preferences it is nearly impossible to create a universal room that would be ideal for everyone. However, research shows that the right place and the right time are important for creativity (Csikzentmihaly, 1996). It has been said that Albert Einstein developed his best ideas while sailing (Reiser, 1930). Immanuel Kant would follow a strict schedule which would include sitting for an hour drinking tea, smoking a pipe and thinking (Kuehn, 2002). Looking through the research one answer seemed to be missing when people were asked, where do you come up with your best ideas. Very few people said that their best ideas came while at the office sitting behind a desk. It appears that many professionals remove themselves from the office to do creative thinking. I feel it would be in any companies' interest to develop rooms or offices that foster creativity. This goes beyond just creating a creative climate within an organization. This project explores the idea of constructing rooms or modifying office space to accommodate a variety of creative thought styles. If an individual's office was designed to their preferences more productive creative thought would be possible. Employees would no longer have to resort to leaving the office or after hours work. Ideas and solutions to problems could be generated faster and may be of high quality, which would ultimately save organizations money. However, customizing individual offices does not appear to be practical for an organization so I will also explore the option of creating one room that would foster creativity for any individual no matter what their preference.

I am not aware of what my ideal setting would be for creative thought. I will explore different aspects of the physical environment to design a room to my preferences. Using different tools and surveys I will determine what environment I do my most creative thinking in. Many factors will go into creating my ideal room. Aspects such as lighting, temperature, noise level, design, mobility, comfort and many others need to be taken into account when creating an

environment that fosters creativity. I will also look at whether my creative thought process is more productive when I am comfortable or uncomfortable. The project will include blueprints and a computer generated model of the room.

### **Rationale for Project**

I am doing this project so I can better understand how my creative thinking process works and under what conditions I am most productive. I have always thought of myself as a creative person but could never understand why on some occasions I could think of many ideas and others I seemed to have a mental block. It wasn't until after taking the Creative Studies classes at Buffalo State College that I became aware that the surroundings in which I placed myself in, affected the process of creativity. I am interested in learning what kind of atmosphere I work best in. I feel knowing this would allow me to be more productive with my time when I am facing a problem. When I am in need of a solution or an idea I often find that it will consume my thinking. This forces me to sit and develop a solution or idea, which results in me using the first idea instead of possibly the best. If I was able to understand my ideal physical environment I would be able to generate more ideas of a higher quality. I am also very passionate about art and design. Designing my own creativity room and building a 3-dimensional computer model will give me the opportunity to express my artistic side.

Also, I would like to give organizations a guide on how to create a creative atmosphere by using the physical environment. A creative climate in the workplace should be a top priority for a business, but is often overlooked because the value is not foreseen. The need for a

company to gain new markets and keep up with a growing global economy is vital, which places an importance on innovation and problem solving (Christensen, 1997). It is easier for a business to seat a group of people around a desk in an egg shell colored room, when a solution is needed, than it is to create rooms that accommodate a variety of preferences. This project will show how organizations can attempt to create rooms that would promote creative thought for a variety of people. It is beyond the scope of this project and more research would be needed to determine the actual cost and benefit of such a project.

# **Section Two:**

## **My Ideal Room**

*This section will present the*

- My Preferences
- Characteristics of my Room
- Construction of my Room

### **My Preferences**

I decided that I would not do any research before determining what my preferred physical environment was. The reason for this approach was to eliminate the possibility of the research influencing any of the decisions made in the construction of my creative room. Also my results can be used in comparison with the findings of the research. Do my preferences coincide with what the research has found?

One of the first things I did to determine my preferences for creative thought was to find surveys or tests that could be of assistance. There were two tests I felt that the results would give me some insight, the Productivity Environmental Preference Survey (PEPS) and the Paragon Learning Style Inventory (PLSI). The PEPS survey was created by Gary Price in 1979 and has been revised a number of times. The goal of this survey is to identify the conditions under which a person is most likely to produce, solve problems, create, and make decisions. It is a test that consists of 100 questions that are answered on a scale from strongly disagree to strongly agree. Each question asks whether or not you like working in some aspect of the physical environment, (Ex. I prefer working in bright light). Within the test there are five categories each question pertains to. The categories are Immediate Environment, Emotional Factors, Perceptual Preferences, Physical Needs, and Sociological Needs. There are four areas under each category. Under the category of Immediate Environment areas such as sound, temperature, light, and design are explored. The questions pertaining to this category will help determine if the lighting needs to be bright or dark, the temperature warm or cool, and if it needs to be loud or quiet. Emotional Factors consists of areas such as motivation, responsibility, persistence, and



flexibility. These areas will help determine if a person needs short term simple assignments and how precise or flexible objectives, time requirements and resources need to be. Areas like auditory, visual, tactile, and kinesthetic fall under the third category, Perceptual Preferences. These areas will determine materials and resources a person should use, (Ex. magazines, videotapes, records, real life experiences, 3-dimensional materials). The fourth category, Physical Needs, consists of intake, mobility, and morning/afternoon. These questions determine what time of day the most productive work is done as well as how often and what kind of nutrition is needed. Sociological Needs is the final category and the areas pertaining are alone or peer oriented and authority oriented. The results establish a person's preference on whether or not he or she likes to work alone. It is important to note that this survey reveals how a person prefers to produce, not why. I felt this survey would give me a solid group of base results to aide in establishing my productive environment preferences.

I administered the survey myself by reading the questions and responding with my immediate reaction. I completed the survey in 20 minutes. Many of the questions were repeating questions, just worded differently, (Ex. I prefer working in bright light, and I prefer to work or read where the lights are shaded.). I am sure this was done intentionally to ensure accuracy. The scoring of this survey requires the use of a ScanTron. However, I did not have access to one that would score the survey. This was not a big problem because it was fairly easy for me to gather the results. By looking at the areas I agreed or disagreed with I was able to determine my preferences.

The following are my preferences concluded from taking the PEPS survey. I enjoy listening to music while I am working or thinking. Loud noises and talking do not bother or

interrupt me. Even though others around me do not disrupt me I prefer to work alone. Even within a group project I prefer to take a section and complete it by myself. I also do not like to rely on others to finish any of work. I do however prefer it when a supervisor or teacher sets specific guidelines and clear expectations of tasks or projects. There was no clear time of day that I prefer working or thinking. According to the survey I can produce during the morning or at night. I prefer working in bright lights. Whether it is natural lighting or artificial does not make a difference. There were some results that I was already aware of such as I prefer working in cooler temperatures and I like to change positions numerous times during a project or task. I was already aware that I am a visual and kinesthetic learner. I have a better understanding of information or a task if I am able to see someone else do the task or be able to physically attempt the task myself. The last noteworthy result I found was that I prefer taking breaks and snacking while working on a project. These results of the PEPS survey will help me in developing some of the characteristics of my ideal physical environment for productivity and creative thought. For the completed survey please see (Appendix A).

The second survey I took was the PLSI which was developed by Dr. John Shindler and last revised in 2003. The survey I took was the 48 question version which was revised in 1992. The newer 52 question survey only slightly increases reliability. The Paragon Learning Style Inventory is similar to the Myers-Briggs Type Indicator in that it uses the four Jungian dimensions (i.e., introversion/extroversion, intuition/sensation, thinking/feeling, and judging/perceiving). This survey aids a person in determining his or her learning style or cognitive preference. The questions are designed so the results will show which dimension a person falls in. The survey is constructed so that each set of dimensions consists of 12 questions. A person can either answer A or B for each question. Questions are designed to eliminate any

“undecided” answers. An example of a question on the survey is: It is better to... A. be able to accept things, B. want to change things. Once completed the number of A’s and B’s are added up in each column. The greater sum will decide which dimension. The end result will be a four letter learning style (i.e. INFP, ENFP, ISFJ or ESTJ).

I administered and scored the PLSI myself. It took 15 minutes to complete both the taking and the scoring of the test. The first column determines if you prefer to be introverted or extroverted. My result was very clear, and not a surprise, I prefer to be introverted. I answered all 12 questions in favor of introversion. The second column decides if your learning style leans more towards sensation or intuition. Out of the 12 questions I answered 8 for the intuition side and 4 on the sensation side. The second letter in my learning style is an N which represents intuition. The third column represents the dimensions of thinker and feeler. On this column I found out one of the draw backs for this survey. I answered 6 questions that pointed towards me being a thinker and 6 questions that pointed towards me being a feeler. I was unable to find what a tie meant in determining my four letter learning style. I was left wondering if I was both a thinker and a feeler or neither. The final column decided if I was a judger or a perceiver. This was another clear result with 8 questions being answered in favor of me being a perceiver and only 4 answers for being a judger. Instead of ending with a four letter learning style I had five. The results of the survey told me that my learning style was INFTP. In most cases I believe that it is clear as to which dimension a person falls into. However, like with my test I am sure that a number of people have ended their surveys with ties in one or more of the dimensions. I feel taking the updated 52 question survey would eliminate the ties and would have been more beneficial to take. I did not take the updated survey because of the cost.

What did this survey tell me about the way I learn? The first letter in my learning style, I, represents that I am an introvert. I have been aware of this for many years. While I do not have any problems working within a group I prefer working alone. The survey stated that as an introvert I learn best when I watch first. It also stated that my ideas come from within and I am autonomous. This statement seems to contradict the results from the PEPS survey. The PEPS survey determined that I prefer supervisors or teachers giving me clear expectations and directions. The PLSI survey concluded that I prefer to set my own standards and I am self governing. I feel that both of these results are accurate. At the beginning of any project I prefer having clear directions of what is expected. I want to know exactly what I need to do in order to complete the project. After receiving the directions, standards and expectations I prefer doing the task or project alone without supervision. I prefer someone telling me what to do but not how to do it. This information shows me that my creative room needs to be very personal and not accommodating for a group. My room should not have items that could potentially lead to any kind of supervisory interruptions (i.e. phone, clocks, and intercoms).

The second letter is an N, which represents that I am more intuitive than sensational. After reading what the survey stated about being intuitive it is clear to me that the results are accurate. According to the survey being intuitive means that I dislike routines and detailed work. I prefer to work in spurts and trust what makes sense to me. I am imaginative and am looking for what is possible. These results show me that when building my room I need to design it so I am able to take many breaks. Also because I do not like routines furniture in my room should be able to be easily moved.

For the third letter I decided to include both the F and the T which means that I am both a thinker and a feeler. After reading the surveys explanations for what it meant to be either dimension I would say I am thinker. I am not sure why the survey resulted in a tie but I feel very strongly that I am a thinker. I am more interested in fascinating ideas than people. I prefer to think rationally and logically. I am impartial and cool headed in conflict. In the design of my room I need to be able to write ideas down no matter where I am in the room. Since I place a great deal of value in ideas and have many of them I need a way to remember them.

The final letter in my learning style is a P, which characterizes that I am a perceiver. Being a perceiver I prefer to be flexible and adaptable. I am curious and am often indecisive. I prefer things that are spontaneous and unplanned. To enhance these characteristics I need to be able to change projects and rearrange things with in the room quickly. My room needs the ability to adapt along with my changing needs and state of mind. The results gathered from taking the PLSI have provided me with some valuable information that will be useful in the construction of my creative room. By understand my learning style I will be able to incorporate things into my room that will accommodate and enhance my style preference. To see my completed score sheet for the PLSI please see (Appendix B).

The surveys were helpful in finding characteristics about my learning and production preferences. However, the most effective tool I used during this process was observation. I began to pay attention to when I felt I was being creative or when I was able to produce at a high quality. I took notice of what color room I was in, the temperature, and what position I was in. I also became aware of the type of lighting, flooring, and overall environment that was most conducive to my creative thinking. With my observations I wanted to answer questions like; Am

I able to think better under pressure? Do I think and produce more when I am comfortable? By observing my surrounding physical environment over the course of a month I was able to gather a wealth of information to aide me in construction my creative room.

### **Characteristics of my Room**

The combination of the PLSI survey, the PEPS survey, and observation provided me with clear results of the characteristics my ideal room must have. I was able to generalize the characteristics into eight categories, which were; Adaptability, Comfortability, Convenience, Control, Mobility, Organization, Stimulation and Variety. The items, colors, and designs were all chosen to satisfy one or more of these categories.

Adaptability is an essential characteristic for my room to posses. The room must have the ability to change with the needs of the task or project I am working on. This means I need many different tools and materials at my disposal. I also must be able to move the items in my room with ease. By moving the furniture around I will be able to create different workspaces. The ability to rearrange workspaces with give me a greater chance of designing one that is most beneficial in completed a specific task or project. For example, I may need to turn a piece of furniture from facing outside because it is a distraction to me on that day. Also the findings show that I prefer spontaneity, which means my room must be able to adapt with my changing thoughts and moods.

One of the most important characteristics my observations showed was that I need to be comfortable for productive thought. During the observation process I noticed that I was unable to focus when I was uncomfortable. Instead of focusing on the task I was only able to focus on trying to get comfortable. If my back began to hurt slightly I would have to move and keep moving until it no longer bothered me. This means my room must be designed for complete comfortability. Every color, piece of furniture, and design choice was intended to make me feel at ease when I am in the room.

My room also is designed for convenience. When I am working I need to have things easily accessible. On every wall there needs to be more than one electrical outlet so I am never bothered by searching for one. The less I have to worry about little nuisances the more productive I can be. This can be accomplished by keeping things organized and clean. I found that I prefer working in an environment where materials are kept orderly and put away in the same spot. I find it displeasing if I have to spend time searching for something because it was not where I expected it to be. This means my room will need to have the essential items and materials and very little else. Keeping the room clean and clutter free is vital for creative thought.

One characteristic both the surveys and my observations concluded was that I must be able to move around during the creative process. I noticed that I was constantly changing positions or walking around during a task. I found it very difficult to sit in a chair for long periods of time and remain focused. Not only did I need to adjust my sitting position, I had to move to a new location. To ensure this characteristic is represented in the room it has to have a number of seating or laying options. It is a necessity that I have at least three different types of

seats. Again the room needs to be kept clear of clutter so I am able to move around freely and find materials quickly.

Another characteristic my room needs to have is it needs to be very stimulating. For me there is a fine line between stimulation and distraction. I found that I do not work well when there are distractions around. Distractions to me are things like phones, clocks, and video games. Although I prefer to take breaks during a project, I do not enjoy being interrupted by outside things. Eliminating these objects from my room will allow me to be more productive and relaxed during the creative process. I am sure the majority of people require some sort of stimulation to generate ideas and I am no different. While observing I found that I was always looking around rooms or through magazines to stimulate myself. This means my room would need objects and materials that could be used to inspire me without distracting. There also must be a variety of stimulating materials to adapt to my changing needs. Most of the objects will be personal objects that could potentially remind me of something and inspire an idea. The key to the objects in my room is they need to be stimulating and there needs to be a variety of them.

Having control over all aspects of my room is by far the most important characteristic. I need to be able to control everything from the lighting to the arrangement of the furniture. Because I need to be comfortable while I am working, the ability to change an element when I am uncomfortable is vital. When the room is too hot or too bright I need to be able to change that quickly. Whenever I have worked in a room that is uncomfortable the biggest problem for me is not so much what is making me uncomfortable but rather that I have no control over or cannot change it.



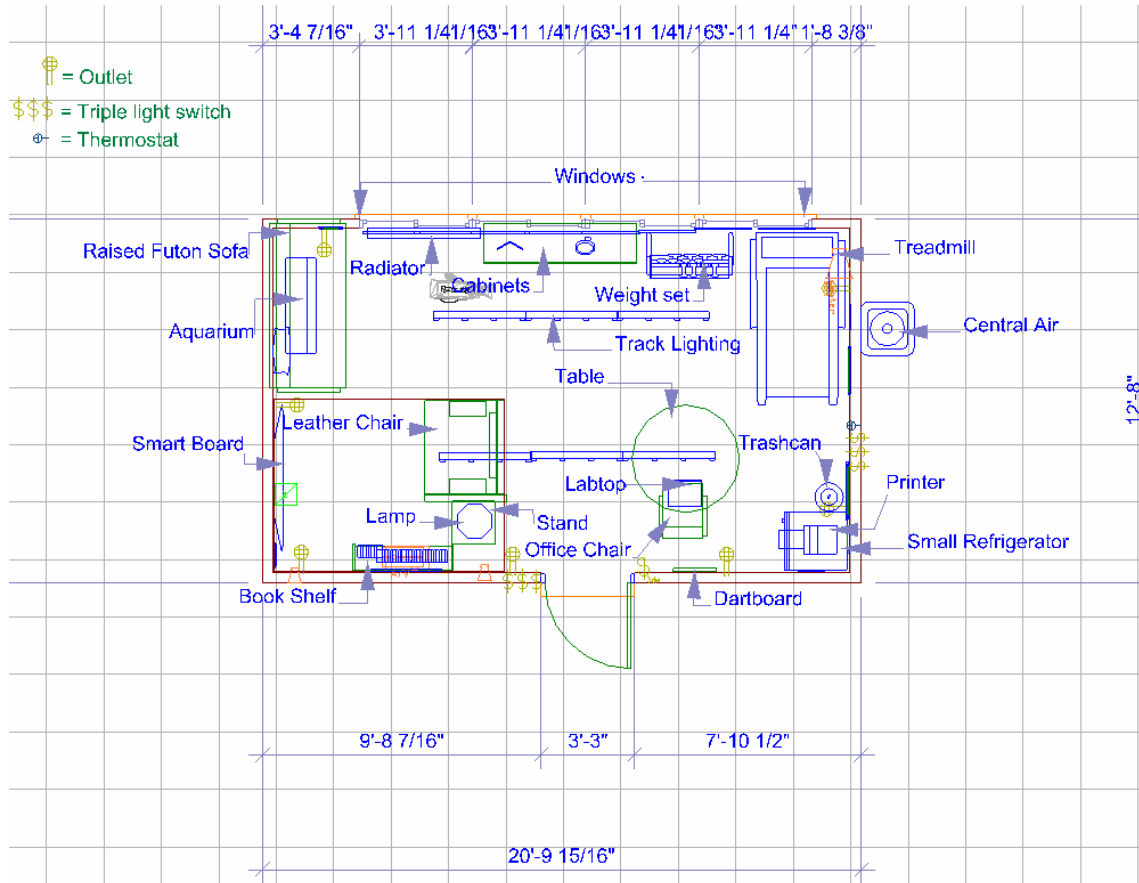
The design of my ideal room needs to meet these characteristics. When I selected the physical features each characteristic was considered. I asked myself if the object satisfied one of my needs, and if it did not then it was eliminated. The next section will show what my room would look like, the physical objects in it, and explain why each was chosen.

### **Constructing My Room**

To construct my room I used a computer program called *HGTV® Home Design & Remodeling Suite*. This program allowed me to draw a blueprint as well as construct a 3-dimensional computer image of the room. The program also provided me with a wide variety of furniture and color choices. I was able to control every aspect from where the outlets were placed to the color of the trash can lid. I found very few restrictions while using this program. One of the restrictions was the lack of decorative pieces I could put in the room. Although they will not be shown, for the sake of this project I will explain later what type of personal decorative items I would place in my room.

Figure 1 shows the blueprint of my room. Included in the blueprint are the layout, objects in the room and the measurements. The overall size of my room is 20ft by 12ft. While I am aware that this is larger than most personnel office spaces, this room was designed to be my ideal room. Thus the size of the room was not limited to a specific size. I decided on all the essential items needed in my room and then designed the layout.

Figure 1.



The room is an open design with no interior walls. However, I tried to create separate spaces within the room that would provide the feeling of a different setting. Each corner of the room is set up to feel like a different workspace than the rest. This provides me with a variety of options to work in which I need to be productive. The entire floor is hardwood with the exception of the lower left corner which has carpet. The hardwood provides me with the ability

to move around with ease. The choice to use carpet in one area was to create a different texture and look in the room. Again variety was a very important characteristic my room needed to have. There are a total of six outlets placed around the room for convenience. For complete control over the lighting I chose to have track lighting. There are a set of six tracks organized into two rows with twelve individual lights in each row. Each light bulb can be moved to direct the light in any direction needed. The lights are controlled by a triple light switch located by the door. Each light switch controls a section of the track lighting, the left side, the middle, and the right side. Also on the right wall there is a triple dimmer switch. This controls the intensity of the light coming from each section. Being able to adjust the lighting in all parts of the room is very important to me.

To control the temperature of the room I have chosen to heat with a radiator and for cooling I chose an air conditioner. I chose a radiator because it heats a room from one specific area. This means the closer to the radiator the hotter it will be. If I came into the room and was very cold I would have the option of walking directly to the source of heat. An air conditioner was chosen for its speed in cooling. The temperature would be controlled by a thermostat placed on the right wall. I would also have the option to open the windows and get a natural breeze. I found that the ideal temperature for me to work in is 70 degrees.

Figure 2 shows the area in the lower right hand corner. This area was designed to be a workspace. One of the features that caused me to be least productive was if the area I worked in felt like an office. I created the workspace to be functional but with the intent not to make it feel like I was at an office. This is why I chose a circle table to put the laptop on instead of using a computer desk. The circle table also will provide me with more surface area to lay out projects.

Figure 2.



On the wall there is a dart board. This may seem like a distraction, which is something my surveys and observations found that needed to be absent from my room. In fact this is one of the objects that could provide me with stimulation. One of the most valuable things for me to do while working on a task or solving a problem was to take a break. If I focus on something for too long I become stagnate in my thinking and become less productive. Having some items in my room, such as the dart board, allow me to take a short break and return to the task with fresh thoughts. However, I cannot have too many of these items because they then will turn into distractions. It also can be used as a tool for convergence. After conjuring many ideas I could place them on the dart board and throw a dart to select an idea.

Also in Figure 2 there are a couple practical items like a trash can and a printer. The printer is also a fax machine and a scanner. It is connected wirelessly to the laptop and the Smartboard. The printer is on top of a small refrigerator. A refrigerator is essential for me to have because I am frequently drinking a beverage while I am doing a project. The refrigerator would contain diet sodas, water, energy drinks as well as snack foods like yogurts and puddings. There are a few decorations on the wall. In the figure they are generic photos but in the actual room they would be personal photos or posters I have collected. As with the other areas in my room this workspace is clean and clutter free.

Figure 3.



Figure 3 shows the back wall of my room, opposite from the entrance. This section contains the only windows in my room. I found that there were times when looking out at nature was a stimulation in my creative process and there were times when it was a distraction. This is why I chose to put horizontal blinds over each window. It would be ideal for me to be able to look out the window and see trees and other natural environments. In total there are six windows and each can be opened separately. The surveys I took showed that I was a kinesthetic learner and I preferred moving around while being productive. During my observation period I also noticed that while I was working out I felt more creative. I seemed to have more thoughts during exercise. Perhaps it is because the heart rate increases and blood is flowing faster. It could be the rhythm created by my feet hitting the running surface allows me to think more freely. Whatever the reason, a way to exercise had to be incorporated into my room. I chose two pieces of exercise equipment, a treadmill and a weight set. These were chosen because they are my two most enjoyable exercises. The treadmill is facing towards the window so I was able to visualize myself running outside. Also the window could be opened to provide a cooling breeze while working out.

The object on the wall next to the treadmill is a speaker. The entire room is wired for surround sound. I enjoy listening to music when I am working out so I placed a speaker next to this area. Again you will notice this area is very simple and free of clutter, which is a main characteristic of my room. In order to keep my room organized and clutter free I need to have a place to store materials. This is why I chose a large cabinet with drawers and doors. The cabinet is not so high that it blocks the view out of any of the windows. The cabinet would store materials like paper, magazines, books, and other office materials. I would also store stimulating objects in the cabinet such as games, toys, and puzzles. These objects would be useful during

divergent thinking. It was important that I had a place to keep all these materials in an orderly manner and kept out of sight when not in use.

On top of the cabinet I would place personal items. I have done a lot of traveling and have collected souvenirs from many countries. Adding these types of items in my room would provide me with images that could bring back memories and help develop new ideas. Part of my creative process is to use past experiences to help solve problems or for creative thought. Some of the specific items I would have in the room would be pictures or famous monuments, churches, and statues. I also like to collect souvenir weapons which remind me of different time periods. These items would be placed strategically around the room. Next to the cabinet is the radiator.

The rest of my room is shown in Figure 4. This area has what I feel is the most unique feature of the room. In the right hand corner of Figure 4 there is a futon couch mounted to the wall. It is elevated 3'5" off the ground and bolted to two walls for stability. The reason I chose to add this feature was to add variety to my seating options. When I stay at the same eye level in the room things can become stagnate or mundane. By raising my elevation slightly I may be able to see things from a different perspective. It will force me to look at things from a view I am not accustomed to, which can provide a spark for creative thought. I also found that some of my most creative thoughts came to me while I was lying down. Adding this elevated futon would provide me with an area to lay down without taking up floor space. I chose a deep red color for the futon to contrast the blue wall. There would be a ladder, not shown in Figure 4, to reach the futon.

Figure 4.



Below the futon is a fish tank. Even though I am not a pet lover, I have found in the past I enjoy staring into a fish tank. Whenever I look into a fish tank I am reminded of the unexplored alien worlds. This often leads me to think about what could be or what if. As you can imagine this is a great way for me to jump start my brain into thinking about new and unexplored ideas. Next to the futon, mounted to the wall, is a Smartboard©. This is a multiuse tool. It has the ability to function like a computer, a television, and a drawing board. The primary use for this tool would be project development. Being able to see presentations on a larger scale would be more beneficial for me. This tool could also act as a way to have video conferences with outside clients if necessary.

My observations showed that I needed a variety of seating options because I like to move around. For comfort I chose to add a large chair that had a lot of cushion. This chair would be



my primary choice. The size of the chair allows me to be seated in many positions comfortably. I chose a deep red micro fiber fabric to cover the chair to match the elevated futon. Next to the chair is a night stand. It has one drawer for storage and a large surface area. The night stand would store a notepad and pencils so I would be able to record ideas. On top of the night stand is a lamp. Besides the track lighting this is the only other form of artificial light in my room.

The final piece of furniture in my room is a book shelf. It would not only hold books and magazines but it would store a DVD player and a CD player as well. The CD player would be MP3 compatible and would be hooked up to a surround sound system. I decided to use a book shelf because of its organizational capabilities. It is smaller than an entertainment center but is able to hold a variety of materials. This is another area personal items would be placed if enough space was available.

I wanted my room to be aesthetically pleasing so I chose all the wooden furniture to have the same stain. The circle table, cabinet, night stand, and book shelf all have a mahogany stain that I feel contrasts nicely against the wood floor. For the wall colors I decided to use two different shades of blue because I found cool colors made me feel more comfortable. When I was in a room that was painted in oranges or reds I felt pressured and tense. Also the warm colors made the room feel warmer and uncomfortable. Blue is a calming color for me and I chose two shades to create visual variety. The walls are also a vital tool in my creative process. The walls provide me with a canvas in which I can write or sketch my ideas on. I would have pencils and markers hanging from the walls in different areas. Keeping ideas on the wall could also provide visual stimulation for other projects.

The overall design of my room is clean and simple. While there is nothing complicated or over the top about my room it is functional and meets all the characteristics I needed. I created a variety of spaces within the room. There are also a number of stimulating items and materials. The layout of the room is open and leaves a lot of room to maneuver. I am able to rearrange the furniture to fit my needs with the exception of the elevated futon. All the other furniture can be moved with ease. I designed the room for convenience so I was able to spend more time being productive. Every decision was based on whether or not it made me feel comfortable. I have a difficult time working in an uncomfortable atmosphere so eliminating all the things that make me uneasy or tense was imperative. Two distracting items I left out of my room were a clock and a phone. Clocks are a source of pressure because they constantly remind me of time constraints. For me there is nothing more distracting than a phone ringing while I am in the process of working on a project. The removal of these objects greatly reduced the stress level in any room I worked in. Finally the most important characteristic my room met was that it provided me with the ability to control many aspects from the temperature to the light intensity.

Going through this process has taught me a lot about the type of physical environment that is most conducive to my creative process. I am more aware of why I feel more creative and productive in certain situations opposed to others. This information will allow me to seek out spaces that have characteristics that will help foster my creativity. The process I used to determine my ideal creative atmosphere can easily be duplicated by any individual. By taking the surveys and paying close attention to the surrounding environment, when being creative, a person can establish characteristics ideal for their creativity. This kind of insight would be beneficial for any individual to understand. The next part of this project will look at research and studies done on the affect the physical environment has on the creative process. This

information will be used to find characteristics conducive to creativity within a group setting. I will explore whether or not it is even possible to create a space that encourages creative thought in individuals that have different preferences. Doing this will help determine if it is in a company's interest to construct these types of rooms.

# **Section Three:**

## **The Group Room**

*This section will present the*

- Characteristics of the Group Room
- Construction of the Group Room

### **Characteristics of the Group Room**

In 1983 Ekvall developed ten key dimensions that would promote a creative climate. Since then there has been a great deal of research connecting the role and importance of creative climate in an organization (Isaksen, 1987; Kirton & McCarthy, 1988; Turnipseed, 1994). The creative climate has been defined as, “the climate for creativity and change is that which promotes the generation, consideration, and use of new products, services, and ways of working. The climate supports the development, assimilation, and utilization of new and different approaches and concepts” (Isaksen, 1998, p. 3). The importance of creating a climate conducive to creativity can not be argued. However, it does leave a question to be answered. How does an organization create a creative environment? The majority of the research involving the environment in question focuses on the cultural or managerial context. This paper focuses on the role of the physical environment in the creative climate. The first part of this paper focused solely on an environment suitable for an individual. How do you create a physical environment suitable for a group of people with different personalities, cognitive styles, and preferences?

“I have spent time unlocking creative potential in people, only to see enthusiasm deflate as the reality of an environment filled with grey cubicles and corporate standards imposes its stultifying effect” (Groves & Knight, 2010, p. 10). A company’s performance has become more dependent on their ability to be creative and their capacity for continuous innovation. Since creativity is becoming a more important aspect in the potential success of an organization, I feel it is in their best interest to find ways of enhancing creativity. It has been suggested that the physical work environment can have a positive effect on creativity in an organization (Becker,

2007, Florida, 2002). The problem does not seem to be whether or not to create work environments more conducive to creativity, but how to create them.

An organization is made up of many individuals, all with different personalities and preferences. What may promote creativity in one person may stifle it in another. In a study done by McCoy and Evans (2002) they found certain characteristics scored high for potential promotion of creativity. However, they also found that not everyone agreed on what those characteristics were. For example, many people found that warm colored rooms (reds, oranges, yellows) were more favorable than cool colored rooms (blues, purples, greens). There was however, a small percentage that found cool colored rooms more favorable. Since there is diversity within employees the physical office environment has to support multiple or unique ways of working (McCoy, 2005).

There have been very few studies and little research that has produced empirical evidence of what type of physical environment would promote creativity in a group. I will explore the research and explain what the findings mean to the development of a climate conducive to creativity. The most recent research was done by Groves & Knight in 2010. They traveled the world in search of organizational leaders in innovation and how the physical environment played a role. They explored a number of organizations and found that the design of the physical environment directly effected the level of innovation. Their research linked four common categories that the design of the building, in most of the organizations, induced. These categories were connected to the level of innovation and creativity in each company and were enhanced by the overall design of the work space.

The first category the physical space promoted was the stimulation of all the senses. In the creative process stimulation is very important, not just visual stimulation, but the use of acoustics and olfactory's can enhance the process. McCoy & Evans (1998) found that bright lights, strong odors, bright colors and unique sounds all increased stimulation in the workplace. A creative space being designed for a group must have a large variety of stimulates because of personal preferences in the group. What one person may find stimulating another may find to be a distraction. This will require the space to have areas designated for specific types of stimulation, i.e. a room for acoustic stimulation. Other design qualities that increase stimulation are intensity, variety, complexity and mystery. Over a period of time people gain a level of coherence of their surrounding which can lead to a loss of interest and boredom because challenges of exploration and discovery diminish (Kaplan & Kaplan, 1982). "People need enough complexity and mystery to provide challenging opportunities so that meaningful problem solving can happen" (Kaplan & Kaplan, 1982, p.86). This means any space that is to be used for creative thinking for an extended period of time must possess the ability to rearranged or altered easily. The rearrangement of furniture or alterations to spaces can recreate a sense of exploration.

The second thing Groves & Knight found is that most of the companies had places for reflection. These included spaces for people to go and have privacy for meditation and reflection. Being able to take time to think over a problem and consider all aspects is a key part of the creative process. Coss (1973) also found the benefits of having places of retreat within a company. He found that the time of reflection could provide rest, recovery, and contemplation which are beneficial to the creative process. This could be created by things like window sills, fireplaces, or aquariums. These periods of time give the mind a chance to refresh and rejuvenate.

These spaces can be a small chair in the corner of room by a window or a full room set up for privacy. A space that is going to be utilized by a group for the creative process must contain a few areas for reflection in the design. The appearance of the areas needs to be varied to provide options for periods of reflection.

The third common category found by Groves & Knight to enhance creativity in the workplace was a sense of play. The ability to experiment and explore is a catalyst for innovation. It is often the case in most organizations that “play” is restricted or prohibited. While restricting play may be a managerial aspect there are ways the physical environment can promote it. Active play has many creative advantages. It is a way of trying new things, letting off steam, and reconnecting people to an inner child (Groves & Knight, 2010). It also helps to form social bonds and promote teamwork and collaboration. The design of a workspace can include areas that have games such as table tennis or pool. Also placing objects that are interactive, like toys, in the office can promote play. Features of the building itself can be utilized to promote play, i.e. places to climb on or crawl under.

The final element Groves & Knight found in most organizations was collaboration. The buildings had places that promoted chance encounters between employees. Common spaces for colleagues to meet and share ideas in are an essential part of the creative process (McCoy & Evans, 2002, Becker, 1990). Social interaction supports the movement of information and ideas throughout a company. Work spaces need to be designed so that random meetings between employees can occur as well as designated group work spaces. Spaces such as kitchens and game rooms can entice people to gather at random. Walk ways can also be designed to raise the chances of interaction between employees.



There have been other physical features found to enhance the creative potential of a work place. For example the use of natural materials such as wood and stone are preferred over synthetic or manufactured materials (McCoy & Evans, 2002, Kaplan & Kaplan, 1989). This is especially true if there is no direct view of nature from the work place. Researchers have estimated that the use of natural materials can act as a substitute for views of nature (Heerwagen & Orians, 1986). Studies by Kaplan & Kaplan (1989) found that employees who surrounded themselves with nature or natural elements felt more creative. In designing a group room the use of materials made of wood and stone would be important. Also having areas open to the outside would be beneficial.

Perhaps one of the most important aspects of a room that promotes creativity is the ability for the employees to have control. Employees who have a sense of control over aspects of their surroundings were found to be more creative (Altman, 1975). Control over things like temperature, lighting, and privacy level are found to be very important in the creative thinking process (Hedge, 1991). I feel that the lack of choice in the setting in which a person must think creatively in is a deterrent for the success of the overall creative process. I personally find that working in conditions that I did not choose or do not have the ability to alter creates an uncomfortable feeling, which limits my creativity. If employees have the ability to move to an area more to their preference then perhaps full creative potential can be reached. Control elements such as physical constraints that reduce choice can lead to stress (Evans & Cohen, 1987). In order to provide a sense of control to the workers that would be using the space a variety of settings need to be available. Each area within the space must have a different “feel” or look to accommodate diverse styles among employees. Also a number of control features such as thermostats, air vents, windows, doors, and light dimmers need to be included. These

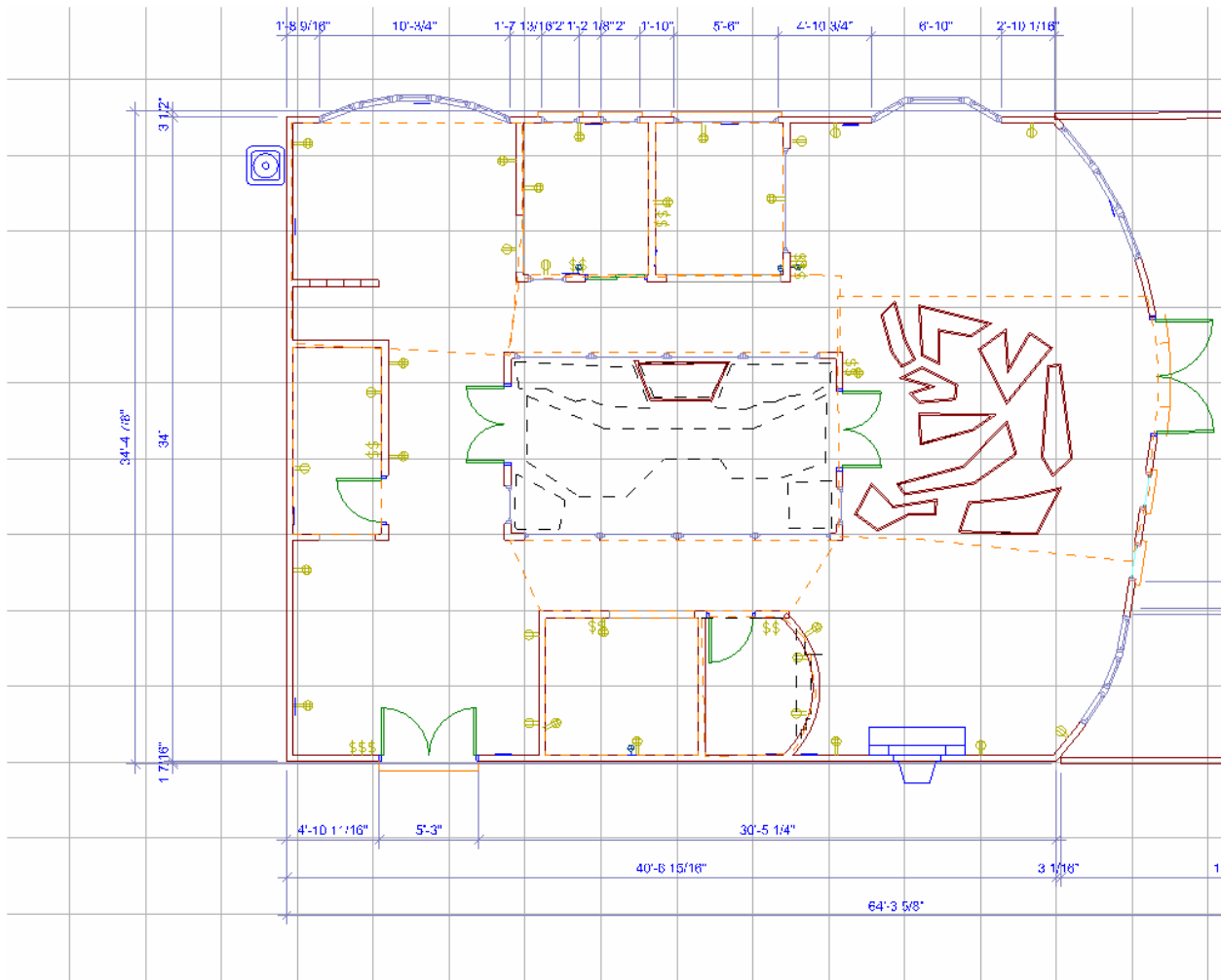
features will allow employees control over temperature, noise level, privacy level, and light intensity.

All of these aspects need to be taken into consideration when designing a work space for group use that promotes creativity. In the next section I will attempt to design such a work place based on the research found.

### **Constructing the Group Room**

The first thing I had to figure out before designing a group room was how big of a group it was going to be for. I decided to design a room that would accommodate 10-15 people. The interior space is 64 ft by 34 ft and has 5 enclosed rooms within the space shown in Figure 5. The square footage of the space is 2200ft. There are two entrance ways into the interior space. To incorporate different shapes into the design of the space I chose to make the right side of the building a half circle. This is to help create different atmospheres within the space. In the middle of the space is an atrium that is open to the outside. Hallways are located on either side of the atrium. The area is complete with an abundance of necessary features such as light switches, thermostats and, electrical plug-ins. Each area is capable of setting its own temperature and light intensity.

Figure 5.



As you walk in the doorway located on the right you see an area designated for play. The area has a 9 hole miniature golf course laid out on the floor shown in Figure 6. I wanted anyone who walked through that door to be assured that play was encouraged in this workspace. Also

shown in Figure 6 are the hanging benches. These benches are very colorful and act as a unique seating element.

Figure 6.



This space will allow for a person to escape the feeling that they are at work. Part of creating a room conducive to creativity is to have areas of escape.

Just to the right of this area is another designated play area shown in Figure 7. I wanted to add a play area that had a more traditional feel. I chose a pool room because it is a game every one can play and it allows for conversation during the game. Around the pool table are 4 chairs which would allow for a number of people to use this space at once. There are many

windows that allow for natural light as well as track lighting on the ceiling that can be directed in any direction. Also on the wall are a dart board and a TV which provides more options for this area. The floor is a hardwood that is the main material used in this space. There is also a rug directly under the pool table to provide a different texture when walking on it. In this area I wanted a very natural feel so the majority of the objects are made from wood. This area is designed as a meeting place for people to relax and enjoy themselves.

Figure 7.



On the opposite side of the miniature golf area is a living space. As shown in Figure 8 I designed the space to feel like a home living room.

Figure 8.



There are 2 sofas that can fit up to 6 people which would provide enough room for a small group. There is also a futon chair mounted on the wall above a bookshelf. This chair is designed to raise the perception level of a person and possibly provide different ways of looking at things. There is a rug on the floor to provide more comfort and warmth to the area. There is also a working fireplace that can provide a focal point as well as a place of retreat. For storage there are two shelves and a coffee table. The shelves can store whatever the group needs from books, games and, movies to audio/visual equipment. The coffee table provides a working space as well as storage. Mounted on the wall is a SmartBoard© which is a very useful tool when working with a group. It can act as a TV, a video conference, or drawing board just to name a few uses. Also mounted on the wall is a fish tank which again provides a focal point for minds to wonder.



I wanted the feeling of this room to be very comfortable and warm. I chose red for the walls because it is a warm color. I chose wooden furniture and stone material for the fireplace and ceiling to provide a natural feel. The space has a hanging fan that can circulate air and windows with curtains to let in natural light. Separating this area and the miniature golf area is a curtain that can be pulled closed for more privacy. All the furniture can be rearranged to accommodate the group needs. This side of the work space has an open layout with no built walls. I designed this space so that the workers had the option of sitting in the living room and be able to watch people play a game of pool.

In the center of the work space is the atrium shown in Figure 10.

Figure 10.



This space is not covered by a roof which leaves the area open to the natural elements. There are doors on both ends with a stone walkway running through the atrium. The atrium is surrounded by glass windows to allow a person sitting in the atrium to see what is going on in the rest of the

building. I wanted this design feature to create a sense of still being inside while sitting in an outdoor environment. The atrium includes plenty of different plants, flowers, and small trees which add a visual aesthetic as well as an aroma. There is naturally growing grass on the ground of the atrium which provides a different texture to walk or lay on. There is also a running manmade waterfall which provides a quiet relaxing sound. For seating there are two kinds of chairs, one made of natural wood and the other made of nylon. Between the chairs is a table for storage. I wanted this space to be a relaxing area that would provide stimulation to many of the senses. Being in an outdoor environment allows a person to hear and see different things that are in an indoor setting. The sense of smell can be stimulated by the surrounding plants and flowers. I chose not to surround the atrium with solid walls because I thought the contradiction of being outside while feeling like you were inside would create a more unique and inspiring feeling.

The room shown in Figures 11 and 12 is the workout area which is 7ft by 8ft. I wanted a room that would allow a person to get their blood flowing and heart rate up. I feel that for some people this allows for more productive creative thought.

Figure 11.



Figure 12.





The room is shown with a treadmill. However, other exercise equipment such as a stair climber or a stationary bike can be used to replace the treadmill. A set of free weights are also included in the room because of the variety of exercises the weights offer. There is a small television in the room that also can be used as a video conference tool with other areas of the building. A large white board is on the wall which can be used to record ideas. I chose a bright warm orange color for the walls because the research done earlier found warm colors to be more motivating. The room has three walls that have large windows that allow for various views. One of the windows provides a view to the outside as well as lets in natural light. The other two windows provide views of other parts of the building, the pool room and the atrium. I felt that providing a variety of scenery to look at would increase stimulation.

Next to the exercise room I designed a space for those people who are motivated by music. I feel that many individuals find creativity in music and having a space in a building for people to explore this can be beneficial to creative thought. The room is 6.5ft by 8ft and contains a variety of musical instruments, as shown in Figures 13 and 14.

Figure 13.



Figure 14.



Like the work out area the items in the music area can be replaced with different instruments pending on personal preferences. I designed the room to be sound proof to allow the music to be played at a high level without disturbing other areas of the building. The room is capable of playing many media formats such as MP3, vinyl, CD, and cassette tape. The floor is carpeted to allow for a more comfortable feel to walk and sit on. I wanted the walls to have a unique feel so I chose to paint in a combination of colors and in a textured manner. The room contains two large white boards to record ideas or be used for art. There are only two small windows in the room that provide a view to the outside. I wanted this room to have a more secluded feel to provide the occupants with an escape from the rest of the building. There is a large fish tank in the wall that provides for a focal point. The previous research found that items like fireplaces and aquariums are restorative elements that can provide rest, recovery, and contemplation.

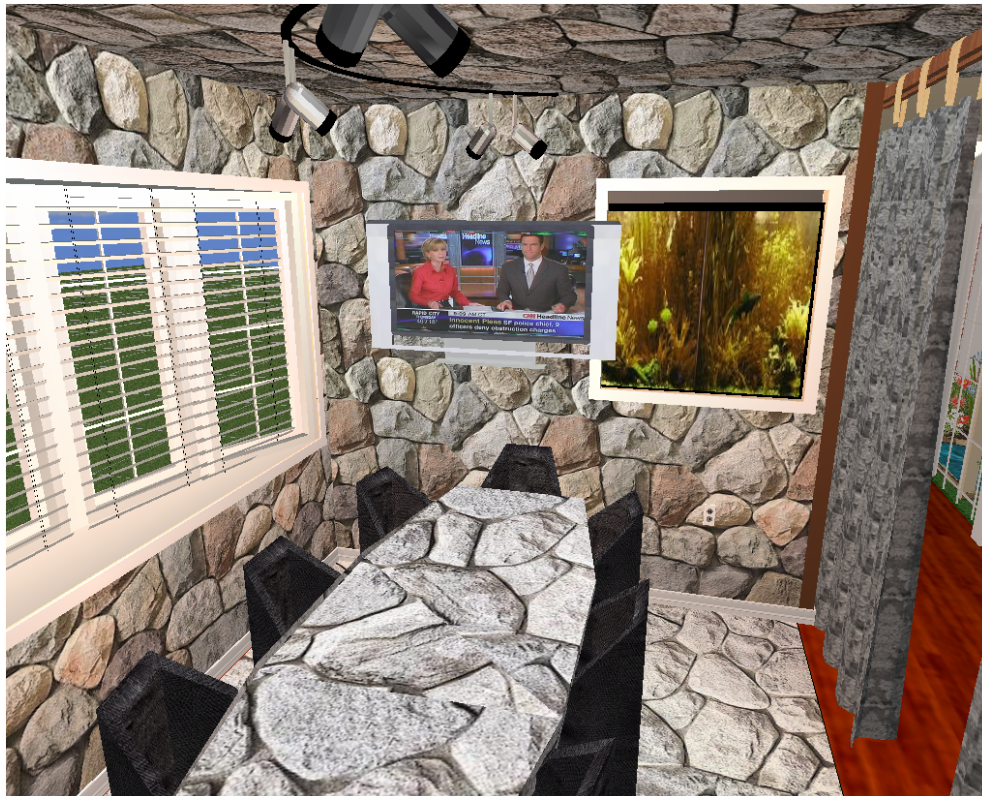
The fish tank connects the music area to the next area which is on the other side of the wall. I designed this area to look like a conference room because I felt the building needed a semi-formal meeting area. The computer program I was using to design the building limited me on some of the design features I could accomplish. I wanted the room to feel like a stone cave but was unable to visually create this because of the limitations of the computer software, as seen in Figures 15 and 16. I wanted to arc the walls to create round edges which would give the room more of a cave like feeling. An example of the shape I would like the room is shown below.

Example 1.



I was unable to create this look with the software so the walls of the room are depicted as normal.

Figure 15.

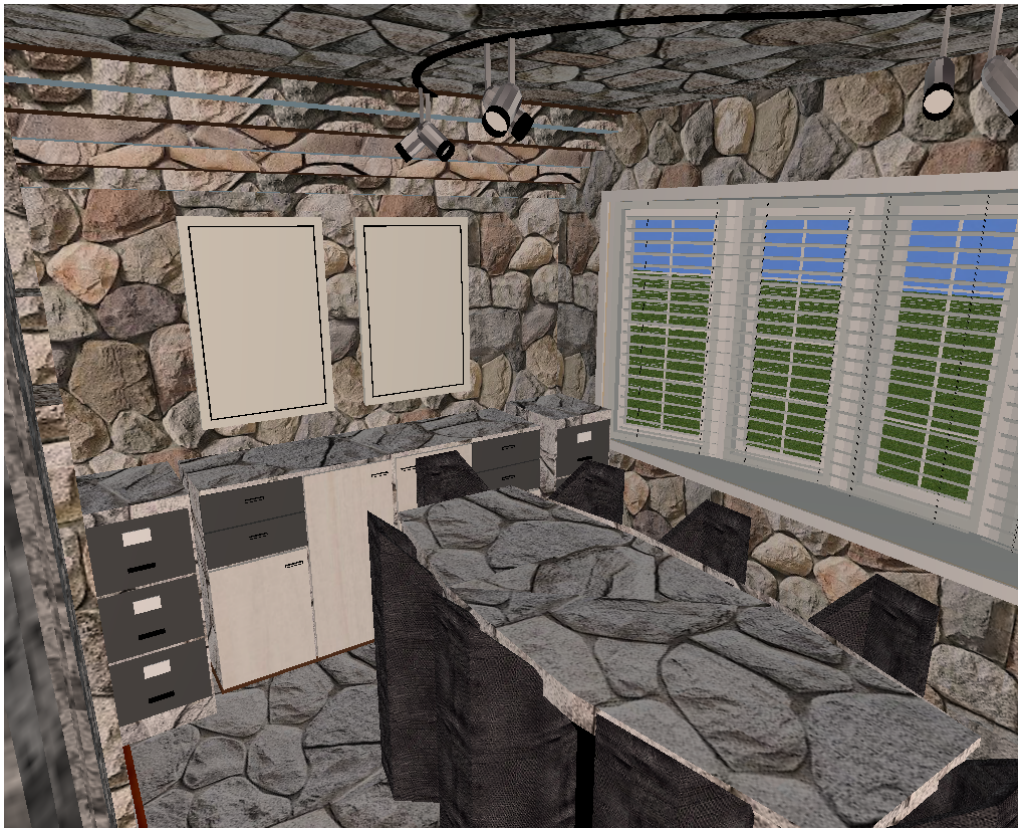


The walls, ceiling and floor are covered with natural stone. The use of this material gives the room a unique look that provides diversity to the building. The fish tank in the music room is also visible in this area. Instead of a door I used a curtain to separate this area from the rest of the work space. The curtain provides for privacy without completely cutting off the rest of the building. Mounted on the wall is another SmartBoard®, which again is a versatile tool. Windows were added to increase the amount of natural light as well as decrease any claustrophobic feeling a person may have. Track lighting was added to the ceiling so a person could have control over the direction and intensity of the light if desired. The table in the middle



of the space can seat eight people. However, more people are able to sit on the window sill and other chairs can be brought into the area.

Figure 16.



On the back wall there are filing cabinets for storage. Everything in the room has natural colors or made with earth tone colors. The table and filing cabinets have natural stone incorporated into the design. This area is spatially complex because of the variety of shapes, which increases creative potential. I feel this room creates a sense of mystery and intrigue which the research showed also increases creative potential. It was important for me to have a variety of rooms that were diversified in appearance and in the mood created.

Next to the conference room is a “cozy corner”, shown in Figure 17. The previous research showed that places of retreat are an important part of the creative process. These areas create a private place for reflection. Even though this spot is not fully secluded, because of the hallway shown in Figure 18, it is tucked between two walls which helps create privacy. Also a curtain can be closed to further enclose the area. The space is only large enough for a small chair and a small bookshelf. The space is designed for privacy as well as comfort.

Figure 17.



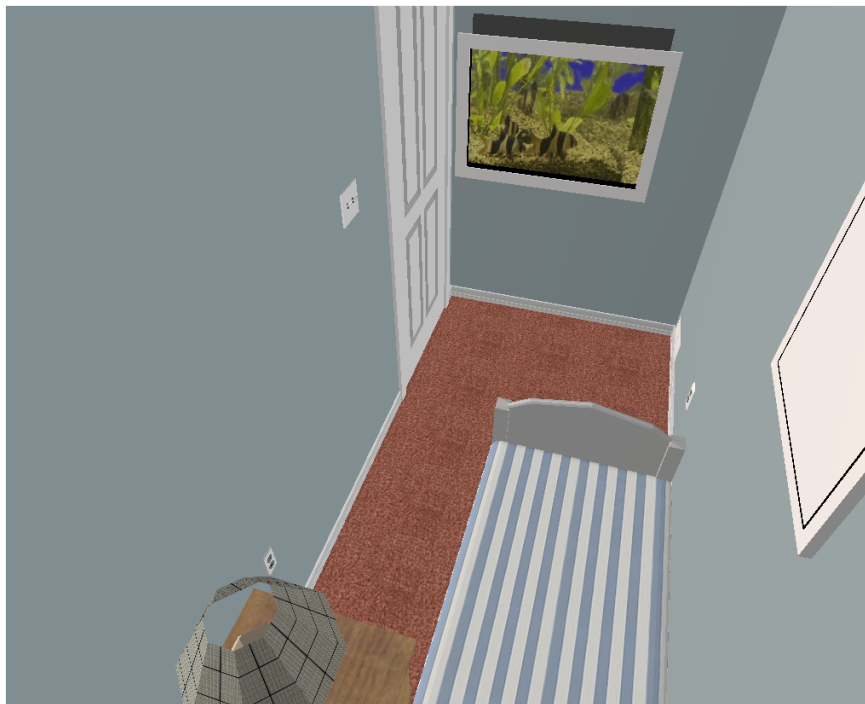
Figure 18.



Figure 18 also has another entrance to the atrium and another entrance to the building at the end of the hallway. This hallway also leads to more workspace. On the right side there are shelves for storage and a white board to write ideas. Having white boards placed in various positions throughout the building is a good way to help people communicate ideas. There is a sky light in the ceiling to allow natural light in. On the wall to the right is a door that leads to an enclosed bedroom.

I wanted to have a room in the building that would allow a person to lie down and rest if needed. The importance of areas for reflection has already been established, and I felt it was important to provide a variety of these areas. While reflection can take place in the “cozy corner” or sitting in front of the fireplace I wanted a room that would provide complete privacy, shown in Figure 19.

Figure 19.



The room is 5ft by 10ft and is painted in a light blue color. There are no windows and the room is sound proof to help create privacy. The floor is carpeted to provide a sense of warmth and comfort. There are two lights hanging from the ceiling which are controlled by switches on the wall, and one lamp on the night stand. The bed provides a spot in the building for a person to potentially fall asleep. The ability to sleep can provide opportunities for a person to not only rejuvenate but also to dream. Dreams can provide a glimpse into the creative process and be

used to spark imagination (Tonay, 2006). In her book there are numerous exercises a person can do to enhance their creative dreaming, work through creative blocks, and interpret dreams. One important part of using dreams as a creative tool is to use a dream journal. This is why I have a white board on the wall right next to the bed as well as a notepad in the night stand. This room is designed for creative thinkers who utilize the unconscious mind as part of the creative process. It also can be used as a room to simply rest, recover, and rejuvenate both the body and mind.

At the end of the hallway shown in Figure 18 is another area to work in. While most of the spaces in the building are designed so that you don't feel like you are in an office building, I felt it was important to have at least one space that did, shown in Figure 20. There are a small percentage of people whose optimal creative environment consists of a desk and a computer (McCoy & Evans 2002).

Figure 20.



I designed the area so that there were three work stations. Each station has a laptop that can be used anywhere in the building. The computers are wirelessly connected to a copier, scanner, and printer which provides for mobility. The three chairs are made of different material to provide variety, but all have wheels that roll across the hardwood floor with ease. The desk and bookshelf are made of a natural wood and provide plenty of storage. For lighting there is a large sky light to allow natural light in and three lamps on the desk to allow direct lighting for each work station. There are also two sets of track lighting on the ceiling which allows for the amount and direction of light to be controlled. The first entrance into the building, shown in Figure 6, is designed as a space for play. I wanted the second entrance, shown in Figure 20, to have the opposite feel, a space designed for work.



Across from the work stations is one of the designed gathering places, shown in Figure 21, that encourages interaction, which is important for the creative process in a business setting (Groves & Knight, 2010).

Figure 21.



I designed the kitchen to be open to other parts of the building to allow interaction to occur with people outside the kitchen as well as in. Instead of a door there is an archway. One wall was removed and a bar was put in to open up the space and provide more seating. There are two decorative pillars are on either side of the bar to give an aesthetic feeling to the space. The kitchen is only 7ft by 7.5ft but it contains all the necessary appliances for a full kitchen. There is a sink for washing dishes and a wooden table with two chairs for seating. Overhead fluorescent lights along with two hanging lights provide enough light for the space. The oven and refrigerator/freezer, shown in Figure 22, are made of stainless steel because of the ease to clean. The floor is made of tile which provides a different texture to walk on. I chose to paint the walls

in pastel green and pastel purple colors to add variety to the building. The walls in the kitchen also have a wallpaper border. I wanted to use as many different colors throughout the building without over stimulating the senses with too many colors that did not have any aesthetic flow. The cabinets are made from natural wood and provide storage for pots and pans and other cooking utensils. As in most of the other spaces in the building I have put two white boards on the wall for recording ideas. A group that intends to use this building for long periods of time will find this space beneficial.

Figure 22.



The last interior space in the building is an essential room to any space that is going to be used for any length of time. I decided to put in a full bathroom instead of just having a toilet, shown in Figure 23. The bathroom includes a toilet, a standing shower, and a sink. On the wall are a mirror and another white board. The room is lit by overhead fluorescent lights and two mounted lights next to the mirror. The shower can be used as a way to revitalize the body and mind. I have found that when I am struggling with a problem that stepping in a shower and allowing the water to wash away everything can be beneficial. Besides the practical uses for this

room it can also be used as a place of retreat. This is only the second room in the building that has no connection to any other part of the building.

Figure 23.



The previous research showed that being surrounded by nature can be a positive factor in the creative process. I chose to have an area that would allow people to get outside and enjoy the natural environment, shown in Figures 24 and 25.

Figure 24.



Figure 25.



The concrete patio is surrounded by a rock wall to create a semiprivate feeling. The patio includes benches and chairs for seating and a table for eating or playing games on. In the middle of the patio is a sandbox which can promote play and take people back to their childhood. The ping pong table provides a place for people to gather and have fun playing a game. This space provides the group with another setting to do work in. The more options the group has the more beneficial the building will be.

This building was designed to be used by a group of people for creative thinking and problem solving. The main obstacle in designing the building was finding a way to incorporate all the factors found in the research that had a positive impact on the creative process within a group. The four main factors found by Groves & Knight (2010) were stimulation, collaboration, reflection, and play. Each aspect of this building was designed to promote these factors. Other

factors such as control and convenience are addressed by giving each area the ability to regulate features like lighting and temperature. Most of the areas have more than one source for lighting, including a way for natural light to be let in. I wanted to provide a wide array of work settings in the building to accommodate the individual preferences found in a group. There are areas where a person can be alone as well as areas for a number of people to gather. There are areas designated for games and fun and areas designed for work. The majority of the space in the building is open which allows for one area to flow into another which helps promote interaction. However, I have installed curtains that can be used to temporarily close off certain areas if desired. Curtains allow for the level of privacy to be controlled. I used a variety of different materials and types of floors to create different atmospheres. Having a variety of different atmospheres creates stimulation (Evans & McCoy, 1998). I tried to use a number of natural materials and supply the building with views of nature to help enhance the creative process.

One design aspect I was unable to represent because of the limitations of the computer program I was using was the use of personal items. Martens (2008) found that the lack of space for personal items hindered creative thought. Personal items can provide an individual with a level of comfort. It also can provide a person with a sense of ownership. Personal items can be pictures of family members, awards, works of art, and other objects. I was unable to show this in my design but I feel that these items are a very important part in creating an atmosphere conducive to creativity in a group.

# Section Four:

# Summary

*This section will present the*

➤ Summary

### **Summary**

Perhaps the most important thing I took away from this project was that the creative process is very individualized. There is no one set environment that will increase creative potential. It is my belief that even for an individual there is no one set environment conducive to creativity. An individual's emotional, physical, and mental needs change day to day and that is why the environment needs to be flexible enough to meet these needs.

In the first part of the project I set out to design my ideal room that would enhance creative thought. I used the Productivity Environmental Preference Survey (PEPS) and the Paragon Learning Style Inventory (PLSI) to gather information that would help me determine my preferences. In conjunction with self observation these tests helped me build characteristics my room needed. I found six characteristics my ideal room needed to be built around. I needed to have control over aspects of the room such as lighting, temperature, layout, and others. The room had to be built with comfort and convenience in mind. Adaptability and mobility were also very important. The room must provide me with enough space to move around and be able to adjust to my changing needs. The final characteristic was stimulation. The contents of the room need to be varied to provide continuous stimulation. I found that many of these characteristics were similar to characteristics needed for the group room.

I used the computer program *HGTV® Home Design & Remodeling Suite* to do a design and virtually construct my room. Each aspect of my room was designed around one of the above characteristics. I did not want to put any limitations on the size of the room because I wanted to find out what size the room needed to be in order to fulfill my needs and wants. However, I also

did not want to go overboard, which I could have easily done, and begin adding every imaginable thing. The size of the room turned out to be 20ft by 12ft.

One of my goals for this project was to determine whether it was practical for organizations to build these creative rooms. I found that building rooms that would foster creativity on an individual basis would not be very practical. Each person would have to be provided with enough space and resources to construct personal creative rooms. This does not seem feasible to me for any company to commit to. However, there are elements that can be utilized by organizations. In having people take surveys like the two that I took a company can learn a lot about how their employees learn and work more productively. Knowing this information can allow a company to put their employees in an atmosphere that fosters their creativity. For example, if the survey finds a group of people that are more productive when it is warm, then you can move those people to a warmer climate in the building. If the survey finds a group of people are more productive when it is darker, then you can move those people to an area that is dimly lit. I feel that it would be highly beneficial for any organization to learn the preferences of its employees and accommodate in any way possible. Even if they are unable to build individual rooms there are small adjustments that can be made that could be impactful.

Another goal of mine was to figure out what type of environment I was most productive in my creative thought. I felt this would benefit me in a number of ways. When facing problems I would understand what type of atmosphere I needed to generate solutions and be able to see these atmospheres out. Also by designing my ideal room was able to visually see an environment conducive to my creativity. This allows me to begin adding some of the characteristics I found into areas of my house. I have an office space in my house that I have



begun to redesign to reflect my ideal room. I feel doing this project has allowed me to become more self-aware which leads me to be more productive and successful with my time.

In the second part of my project I wanted to create a room that would foster creativity within a group setting. This was very challenging because I quickly determined it was almost impossible to have one room successfully meet all the needs of the group. I switched gears a little and designed a space that fostered creativity within a group. I researched studies pertaining to the environmental preferences of a group. I also looked at research that dealt with how different environmental factors effected people. The most helpful research was done by Kursty Groves and Will Knight in 2010. They went to companies known to be creative and looked at the environmental factors and how they contributed. They found four common characteristics that the physical environment promoted in the majority of the companies. They were stimulation, collaboration, reflection, and a sense of play. Each company used the physical environment to stimulate all the senses. They had areas in the building for people to have chance encounters as well as designed meeting places like a game room or a kitchen. Each had private areas or what they called “cozy corners” to allow people to reflect privately. These “cozy corners” were areas like window sills, fireplaces, or enclosed private spaces. The fourth characteristic each had in common was that the physical environment created a sense of play. Areas included table games such as billiards and table tennis as well as sporting items like a basketball hoop or a football. These four characteristics were the primary building blocks in designing the group space.

To incorporate the characteristic of collaboration I designed a number of planned meeting areas including the living room, conference room, and the billiards and gaming area. These areas

can accommodate a number of people and could be used as scheduled meeting places. I found that it was also important to have areas for chance meetings to occur. I designed the kitchen, the atrium and the patio to create opportunities for chance encounters, which can be beneficial in sharing ideas and knowledge. Also to help share ideas and make collaboration easier I have a number of Smartboards© throughout the space. These can be used for video conferences or as a way to store and share ideas with not only the people in the building but with people around the world. To further collaboration I added whiteboards in each area. These are to record ideas, reminders, or problems. The whiteboards are beneficial because they allow for people to see ideas or problems the previous occupants of that space were having. The more people aware of a problem means more solutions generated.

To add a sense of play to the space I designed two gaming areas. Both areas are games that can be played by an individual or a group. One area has a tavern atmosphere with a billiard table, dart board, and stools. The other area is more unique because it is an indoor miniature golf course with benches hanging from the ceiling. Although these physical features provide people with the opportunity to play it is important for the organization to create a culture in which it is ok to play. The physical features promote play but they might not be used if people feel playing is discouraged by the company. I have also included board games, puzzles, and playing cards to provide a variety of ways a group can have fun.

The space is designed to stimulate all the senses. The research showed that a space that has variety, complexity, and mystery increases stimulation. This led me to include a variety of colors and textures on the walls and floors. I used the hallways and corners to create a sense of mystery. By not allowing a person to see every part of the space a, "I wonder what is in that

room” state of mind is created. The atrium in the middle of the space is the area that is capable of stimulating all the senses. Being outside allows a person to hear and smell nature. The atrium contains flowers and plants of all sizes and colors. The grass provides a contrasting feeling to the stone walkway. Inside I designed a contained room as well as placed speakers in each area to allow for acoustic stimulation. One important feature for stimulation is the use of personal items in the room. I was unable to represent this in my computer generated design of the room because of the limitations of the program. However, in the actual room the use of personal items to decorate the space would be encouraged.

Finally to incorporate features that would encourage reflection I added private areas and “cozy corners”. In the living room I included a fireplace, which the researched showed to be a great way of providing a warm spot to sit and think. There are three contained rooms within the space that can provide complete privacy. I built a bedroom to allow a person to rest and recover. I built a bathroom not only for practical uses but also as a space to be used for reflection. I feel standing in a shower and allowing warm water to wash over your body can be very rejuvenating. There are a few spots that are isolated nooks between rooms like the chair between the conference room and the bedroom. In reality any of the areas can be used as a place for reflection as long as there is privacy. The space I designed has enough areas for twelve people to have enough privacy for reflection.

Other studies led to the addition of more specific features in the room such as the use of natural materials, color schemes, layout, and lighting. The use of natural materials, open views to nature, and the use of warm colors were found to promote creativity by a few of the studies. However, it was mentioned in the majority of the research that none of the physical features

would promote creativity in 100% of people. This is the challenge I faced in designing the group space. In the majority of the research warm colors were found to be more beneficial in the creative process, but there are a people, like myself, who find cool colors more beneficial. This contrast holds true for a large number of the physical features. There is no one temperature, light intensity, or material that can be used that will foster creativity in every person. This meant I needed to design areas that were in contrast with other areas. For example, I designed an area with warm red paints and carpeted floors, but because that preference is not shared by all I designed an area with cool blue colors and hard wood floors. In some of the areas I allowed for natural sunlight to be the main source of lighting. In others I used artificial lighting or a combination of both. For every feature found to promote creativity in a group I tried to include a contrasting feature somewhere in the space to accommodate the minority.

One of the most important aspects of the space I tried to include in each area was the ability to control many of these features. In each area I installed thermostats, light switches, dimmers, curtains or shades, and other controlling devices that would allow for each area to be regulated separately. I felt it was important for features in the areas to possess the ability to be altered or adjusted to meet the preference of the person or group using the space at that time. These control devices provide the space with another important aspect in a creative environment, adaptability. If the area did not have the ability to control such features as temperature or lighting it would limit the number of people who would find the room to their preference. Being able to control these features and adapt them to a variety of preferences broadens the number of people who could use the space and be productive in it.

The main goal for the second part of this project was to find out if it was sensible for an organization to create a space that would foster creativity in a group. Groves and Knight's research shows how important the physical environment can be in enhancing creativity and problem solving. Many of the companies that are considered in the industry as being innovators have spent time and money in developing physical environments conducive to creativity. I feel that in the world we live in where innovation and problem solving are becoming more important, developing the physical environment should be a top priority. While there are many companies that already have created a creative atmosphere the majority have ignored this aspect for whatever reason.

For smaller companies it probably isn't feasible to create a space as large as the one I designed, but it may be practical for them to utilize some of the features. I designed the space so that all the features were connected, but having different areas scattered throughout a building can be just as beneficial. Any way a company can incorporate the four characteristics Groves and Knight found to enhance creativity should be done. It is my opinion that sitting in neutral colored cubicles or egg shelled colored conference rooms for creative thinking or problem solving is no longer sufficient. The physical environment should no longer be looked at as just a setting for the creative process, but instead as a tool in the creative process.

In coming to the conclusion that many companies may not have the resources to develop such environments I was led to an entrepreneurial idea. As mentioned before there are a number of organizations that do not possess the means to build these types of spaces. What if the organizations did not need to build a space? What if there was already a space built that could be rented out? A contractor could construct a building with the sole intention of making every

aspect promote creative thought. The space that I designed could be used as a model but this building would be larger and contain a lot of resources. This space could be rented by companies by the day and be used however they see fit. To enhance the potential for more productive thought I would have a company reserve the space at least a month in advance. This would give the contractor time to administer surveys to the people who were going to use the building to gather information on their preferences. This information could then be used to adjust the building to meet their preferences. The building itself would not be altered but small things like wall color and the types of materials supplied could be. It would take research and studies beyond the scope of this project to determine the value of constructing such a building. As mentioned before, for companies lacking the ability to construct their own creative spaces sending a group of people to the described building would be an adequate alternative.

Another possible use for the space I designed is to provide a model for companies constructing new buildings. One of the first things a new company does is look for a location or space for their building. The importance of creative problem solving is often not taken into account when designing and constructing these buildings. Even if a company is aware of the importance of creative problem solving they may not be aware of how the building and physical space can be developed to enhance creativity. If a company is made aware of the potential of the physical space before construction they would be able to include features in the blueprints. This would save a company time and money because they would not have to remodel the building at a later time. Features from my design can be integrated into the construction, like the cave conference room.

This project has shown me how personal the creative process is. I have learned what kind of environment I am most productive in and how to create that environment. I have also learned how beneficial the physical environment can be in promoting creativity. I have found ways to incorporate aspects that promote creativity into spaces that can be used by a group of people. This project outlines a process any person can go through to find their own creative preferences. It also outlines a process for an organization to develop physical spaces for creative problem solving. As innovation and problem solving become more and more important constructing environments that enhance those processes needs to become a priority.

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